



Singidunum University
Faculty of Technical Sciences

Department of Data Engineering

MEAN STACK Application for ‘MATRICA’ Community

-MongoDB, Express, Angular, Node JS, jsonwebtoken, bcrypt, SSL-

•Final project - report•

Course: Security Aspects in Software Engineering

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SDE

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1. Introduction

In this project a MEAN STACK application is made for a community called Matrica. Matrica is a place where users can have different activities such as knitting, sewing, painting and other hand-made activities, also there is an opportunity to rent a place for business meetings, smaller activities such as doing yoga or for education purposes. As a community Matrica organize their event where users can participate for a monthly fee. One of the other products Matrica offers are books/reports or a handbook published by Matrica. This project is focused on making the opportunity for users that have an account to see all books that Matrica has available and their prices. In the Figure 1 it can be seen how application is organized.

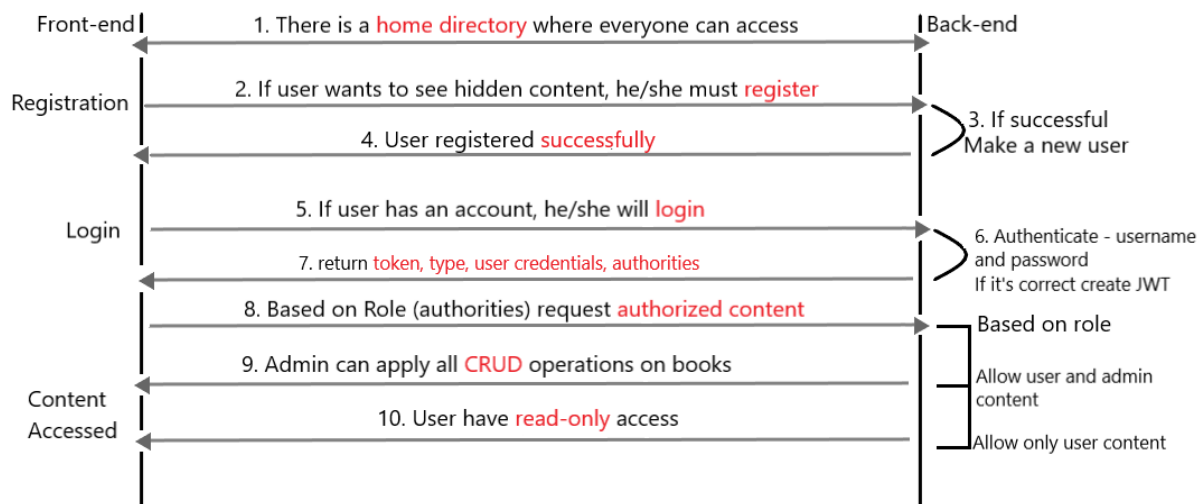


Figure 1: MEAN STACK application flow

2. Data Model

In the database there are 3 different collections – users, roles and books.

Users

ID	Integer
Username	String
Email	String
Password	String
Roles	Object

Roles

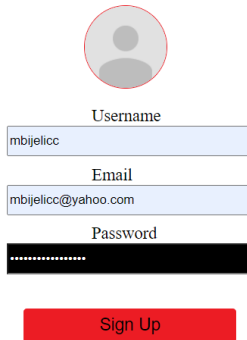
Name	String
------	--------

Books

Title	String
Author	String
Text	String
Price	Number
Updated_at	Date

3. Application UI

3.1 Registration page



Registration form UI showing input fields for Username, Email, and Password, and a Sign Up button.

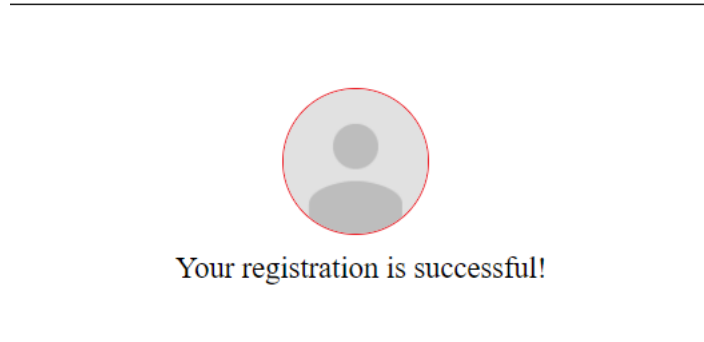
Username
mbijelicc

Email
mbijelicc@yahoo.com

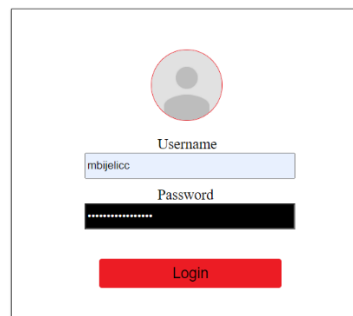
Password

Sign Up

If registration is successful ↓



3.2 Log in page



Login form UI showing input fields for Username and Password, and a Login button.

Username
mbijelicc

Password

Login

3.4 Admin content

Admin can 'read' all books from the database as a user, difference is that admin can perform other CRUD operations as create new book, edit existing one or delete, which can be seen in following figures

List of books

Title	Author	Short	Price	Last publish	
Software and hardware attacks on RSA encryption and authentication	Mirjana Bijelic	Diploma thesis	150 \$	2022-03-28T22:34:33.322Z	Details
Smart home - IoT	Bojan Gutic	Building smart home using Arduino	290 \$	2022-03-28T22:37:36.088Z	Details
Computer Vision in practise	Vuk Ignjatovic	Computer Vision in practise	150 \$	2022-03-28T22:40:07.977Z	Details

If clicking on details button ↓

Book : Software and hardware attacks on RSA encryption and authentication

Author:
Mirjana Bijelic

Text:
Diploma thesis

Price:
150

Update Date:
2022-03-28T22:34:33.322Z

Edit this book Delete this book

If clicking on edit this book button ↓

Edit Book

Title
Author
text
Price

Software and hardware atta
Mirjana Bijelic
Diploma thesis
150

Update

Adding new book ↓

Add New Book

Title
Author
Text
Price

Add new book

3.5 User content

Book's available				
Title	Author	Short	Price	Last publish
Software and hardware attacks on RSA encryption and authentication	Mirjana Bijelic	Diploma thesis	150 \$	2022-03-28T22:34:33.322Z
Smart home - IoT	Bojan Gutic	Building smart home using Arduino	290 \$	2022-03-28T22:37:36.088Z
Computer Vision in practise	Vuk Ignjatovic	Computer Vision in practise	150 \$	2022-03-28T22:40:07.977Z
Diving	Voja	Theory of diving	300 \$	2022-03-28T23:47:38.243Z
Manual - glass cutting	Aca	Mannuel script of how to cut glass	200 \$	2022-03-29T00:19:14.692Z
Database adminisitrator in practise	Dragan Ilic	How working as database administrator looks like	250 \$	2022-03-29T11:15:12.447Z
Full stack - MEAN	Tamara Stamenkovic	MEAN Full stack development from skrech	250 \$	2022-03-29T16:34:22.363Z

Books available in store on address - Brace Jerkovic 185a

4. Conclusion

Since Matrica community provide much different opportunities, such as renting place, participating in different events, buying items from store etc. the application should go in direction where user can choose in calendar when he/she wants to rent a place and if that is available, to make a reservation for a different event and to buy items from a store online. Where admins can see who is coming to the event, when the place is rented and who bought what. In terms of security, this application beside SSL, password hashing and JWT tokens must have and RSA protocol in order to have secure paying over the internet and DDOS protection.